



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/777,630	02/13/2004	James A. DiCarlo	61011.00006	1837
7590 03/17/2008 Squire, Sanders & Dempsey LLP 14th Floor 8000 Towers Crescent Drive Tysons Corner, VA 22182				
EXAMINER LOPEZ, CARLOS N				
ART UNIT 1791		PAPER NUMBER		
MAIL DATE 03/17/2008		DELIVERY MODE PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary****Application No.**

10/777,630

**Applicant(s)**

DICARLO ET AL.

**Examiner**

Carlos Lopez

**Art Unit**

1791

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 December 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) 1, 2, 6, 7, 9 and 14-27 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 3-5, 8, 10-13 and 28-36 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 33-36 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification provides thermally treating a sample that deposits a thin interphase coating on the fibers. However, the specification fails to disclose that *after* the heat treatment a further coating is provided as recited in claims 34-36.

As for claim 33, the specification fails to disclose an *additional* external reshaping stresses are applied to the sample. The specification only discloses the use of the atmospheric pressure in order to apply stress to the sample but does not disclose an *additional* stress.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 33 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The term "more technically advantageous net preform" in claim 33 is a relative term which renders the claim indefinite. The term is not defined by

Art Unit: 1791

the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3-5, 8, 10-13 and 28-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over DiCarlo et al (SiC/SiC Composites with Improved BN Coating on Fibers) in view of Sacks (US 6,040,008). DiCarlo teaches of providing a coating of BN on a bulk SiC fiber or onto fibers woven into cloth performs (See first full paragraph of page 2). The BN coating is an in-situ grown coating being rich in carbon (See last paragraph of the first page). The claimed "atomic decomposition from the surface of each fiber" is deemed as decomposition resulting from the boron in the bulk SiC fiber diffusing to the surface and forming a BN coating. The formation of the coating takes place in a heat treatment process at 1800°C.

DiCarlo is silent disclosing the process parameters for the heat treatment step. However, at the time the invention was made it would have been obvious to a person of ordinary skill in the art to have predetermined the claimed process parameters because they affect the BN coating reaction. As shown by Sackett, the atmosphere and

Art Unit: 1791

temperature are important parameters to control when coating the fibers (Col. 3, lines 11ff). A person of ordinary skill in the art can easily envisage that flow rate, pressure, temperature and holding time are parameters that would affect the reaction to form a BN coating. Thus, while DiCarlo is silent disclosing the claimed parameters a person of ordinary skill in the art coating BN on SiC fibers readily knows that said parameters are obvious factors that should be taken into consideration when coating the SiC fiber.

In regards to the claimed minimal loss of tensile strength (and creep resistant as recited in claim 11), it is deemed that the claimed property is shared by the preform of DiCarlo in view that the process steps disclosed by DiCarlo are substantially the same as instantly claimed; in fact Sacks teaches that improved creep resistance if achieved.

The claimed step of thermally treating the sample at a hold time of five hours or less, Sacks already discloses the claimed treating times in example 2.

As for claims 4 and 10, the gas is inert or nitrogen gas as noted in the last paragraph of page 1.

As for claim 5, the claimed temperature is disclosed in example 2 of Sacks. In regards to the claims flow and atmosphere conditions, see above noting that the art recognizes the claimed parameters as result effective variables for which a person of ordinary skill in the art would have conducted routine experiments to determine to achieve optimum results.

As for claim 8, the removal of B from the bulk fiber is noted in the last paragraph of page 1.

As for claim 28-30, as noted above the boron diffusing from the fibers reacts with nitrogen atmosphere to form a BN coating (See examples 4-5 of Sacks). Thus, said treatment would simultaneously allow for the removal of Boron as instantly claimed.

As for claims 31-32, see above regarding the claimed process parameters.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carlos Lopez whose telephone number is 571.272.1193. The examiner can normally be reached on Mon.-Fri. 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571.272.1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Carlos Lopez/  
Primary Examiner  
Art Unit 1791

CL